

### **REMARKS**

Claims 1-4, 6, 11-14 and 20-22 are pending in this application. Claims 5 and 15-16 have previously been canceled without prejudice or disclaimer. Claims 7-10 and 17-19 have been withdrawn from consideration pursuant to 37 C.F.R. §1.142(b) due to the finality of the Restriction Requirement (Paper No. 8).

As a preliminary matter, the Examiner's several courtesies extended to Applicants' representative during the telephone interview conducted on May 10, 2004, are noted with appreciation. During that interview, the Examiner has expressed an understanding of Applicants' disclosed invention relative Yoshida et al., U.S. Patent No. 6,212,761, and Shafer, U.S. Patent No. 5,717,518. However, the Examiner has questioned the clarity of claims 1 and 11 as proposed in the Amendment After Final filed on April 19, 2004 (which was not entered because of new issues).

Specifically, the Examiner has asserted that the limitation "detecting variation in dimensions of the magnetoresistance effect element and the resistance detector element formed on the raw bar" as previously proposed in claims 1 and 11 was vague and indefinite because it was not clear as to whether the variation of dimension of the MR element and the resistance detector element, as shown in Figs. 2A-2C, is compared with another MR element or another resistance detection element, or alternatively, a reference MR element or a reference resistance detector element that are known by the system. In addition, the Examiner has also asserted that the term "raw bar" should be replaced with "row bar"—for consistency purposes, as shown in Fig. 1 and Figs. 2A-2C.

In response thereto, and pursuant to the agreement reached with the Examiner during that interview, base claims 1 and 11 have been amended to

address the Examiner's concerns for purposes of clarity and brevity that are unrelated to patentability and prior art rejections in accordance with current Office policy, to clearly define Applicants' disclosed invention over the cited prior art and to assist the Examiner to expedite compact prosecution of the instant application.

As previously discussed, the Examiner also asserts that references, such as Japanese Paten Laid-Open Publication No. 63-34713, No. 2-29913, No. 5-46945 and No. 63-191570 as expressly acknowledged and described in the "Background" section of Applicants' specification have not been considered unless these references are "submitted in a separate paper" and cited by the Examiner in Form PTO-892. In addition, the Examiner also cites MPEP §609 which states that the listing of references in the specification is not a proper IDS. Again, as Applicants have previously explained, the Japanese Laid-Open references as expressly acknowledged and described in the "Background" section of Applicants' specification, are publicly available documents to the Examiner and the Examiner has already considered them in the context of Applicants' disclosure, there is **no** need for Applicants, nor is there any authority under 37 C.F.R. § or the MPEP to require Applicants to submit them in a separate form PTO-892. Under 35 C.F.R. §1.56(a), Applicants are only obligated, pursuant to the duty of candor and good faith, to submit to the USPTO all information known to the Applicants to be material to the patentability of one or more claims as pending in the application. There is no duty to submit information which is not material to the patentability of any claim. Since the Japanese Paten Laid-Open Publication No. 63-34713, No. 2-29913, No. 5-46945 and No. 63-191570 only provide information in the "Background" section of Applicants' specification, there is **no** need for Applicants to submit them in the form of an IDS. Therefore, any requirement of an IDS submission should be withdrawn.

The drawings have also been objected to because of a number of informalities kindly listed on page 3 of the final Office Action (Paper No. 1203). Specifically, the Examiner asserts that the Replacement Sheets for FIG. 3, FIG. 4, FIG. 7, FIG. 9, FIGs. 12-14 and FIG. 16 as submitted on September 24, 2003 are not acceptable because they do **not** show reference signs, such as item 60c, 60d, 61c and 61d (pages 20 and 21) and 69 (page 23). In response thereto, the specification has been amended to delete reference signs 60c, 60d, 61c, 61d and 69. As amended, the objection is now moot. Accordingly, acceptance of the Replacement Sheets for FIG. 3, FIG. 4, FIG. 7, FIG. 9, FIGs. 12-14 and FIG. 16 as submitted on September 24, 2003 is respectfully requested.

The previously submitted substitute specification has also been objected to because the Abstract of the disclosure is too length (i.e., longer than 150 words), and the disclosure contains several typographical errors as listed on page 4 of the final Office Action (Paper No. 1203). Again, for purposes of expedition, the substitute specification has been amended, and the Abstract attached thereto, has been revised to overcome the objection. Applicants again certify that the Substitute Specification contains no new matter.

Claim 11 has been objected to because of informalities noted on page 4 of the final Office Action (Paper No. 1203). Specifically, the Examiner asserts that the term "an optical image" in claim 11 should be "said optical image". In response thereto, claim 11 has been amended to overcome this objection.

Lastly, claims 1-4, 11-14 and 20-22 have been rejected under 35 U.S.C. §103 as being unpatentable over **newly cited art**, Yoshida et al., U.S. Patent No. 6,212,761, as modified to incorporate selected features from Shafer, U.S. Patent No. 5,717,518. In support of this rejection, the Examiner asserts that Yoshida '761

discloses all aspects of Applicants' claims 1-4, 11-14 and 20-22, except for "detecting means of the optical measuring device (20) detects the geometrical information from an image signal that has been photoelectrically converted by an image pick up means from an optical image of the substrate obtained by an image means" which is allegedly disclosed on FIG. 4 and FIG. 6 of Shafer '518.

However, the Examiner's assessment of Applicants' base claims 1 and 11 is incorrect, partly because Applicants' base claims 1 and 11, as previously amended, never make reference to the "geometrical information" as alleged by the Examiner. Rather, Applicants' base claims 1 and 11 expressly require detecting "dimension and alignment error of the magnetoresistance effect element and the resistance detector element formed on the substrate from an image signal". As a result, the Examiner's assertion regarding what Yoshida '761 and Shafer '518 is factually incorrect. Applicants respectfully submit that key features of Applicants' base claim 1 and 11 are **not** disclosed or suggested by Yoshida '761 and Shafer '518, whether taken individually or in combination with any other references of record. Therefore, Applicants respectfully request the Examiner to reconsider and withdraw this rejection for the following reasons.

Claims 1-4, 11-14 and 20-22 define a method and an apparatus for measuring dimensions and alignment error of thin film magnetic heads formed on a row bar cut-off from a substrate. Specifically, independent claim 1, as amended, defines a method of measuring dimensions and alignment error of thin film magnetic heads formed on a substrate, comprising the steps of:

- illuminating a magnetoresistance effect element and a resistance detector element which is formed for monitoring a lapping process, both of which are formed on the raw bar, with illuminating light whose wavelength is 300 nm or less;
- forming an image by imaging light reflected from said elements;

converting said image to an image signal through photoelectric conversion; and  
detecting dimensions of the magnetoresistance effect element and the resistance detector element formed on the row bar by processing said image signal, and calculating alignment error of the magnetoresistance effect element and the resistance detector element from detected dimensions.

Likewise, independent claim 11 defines an apparatus for measuring dimensions and alignment error of thin film magnetic heads formed on a row bar cut-off from a substrate, comprising:

a light source for emitting light whose wavelength is 300 nm or less;  
illuminating means for illuminating a magnetoresistance effect element and a resistance detector element which is formed for monitoring a lapping process, both of which are formed on the row bar, with illuminating light emitted from said light source;  
imaging means for obtaining an optical image of the row bar, illuminated by said illuminating means;  
image pick up means for converting an optical image of the row bar, which is imaged by said imaging means, to an image signal through photoelectric conversion; and  
means for detecting dimensions of said magnetoresistance effect element and said resistance detector element formed on the row bar by processing said image signal that is obtained by said image pick up means, and for calculating alignment error of said magnetoresistance effect element and said resistance detector element from detected dimensions.

As expressly defined in each of Applicants' independent claims 1 and 11, the dimensions of the magnetoresistance effect element and the resistance detector element formed on the row bar are detected by processing the image signal, and alignment error of the magnetoresistance effect element and the resistance detector element is calculated based on the dimensions detected. In other words, both the dimensions of MR element and resistance detector element and the alignment error between the MR element and the resistance detector element are detected to

monitor the MR element formation process as describe on page 11 extending to page 12, 1<sup>st</sup> paragraph of Applicants' Substitute Specification. As a result, high-precision measurement of dimensions and alignments can be advantageously realized, and occurrence of defective elements can be reduced.

In contrast to Applicants' claims 1-4, 11-14 and 20-22, Yoshida '761, as a primary reference, only discloses a method for manufacturing a thin-film magnetic head and a manufacturing system of the thin-film magnetic head in which the bar ID is accurately and easily carried out to improve yield ratio. Absolutely, there is **no** disclosure whatever from Yoshida '761 of any method or apparatus for measuring dimensions and alignment error of thin film magnetic heads formed on a substrate as expressly defined in each of Applicants' claims 1-4, 11-14 and 20-22.

Nevertheless, the Examiner cites FIG. 5, column 5, lines 50-59 of Yoshida '761 for allegedly disclosing the use of "an optical measuring device (20) with detecting means for detecting dimensions and alignment error (Fig. 5; column 5, lines 50-59) of said magnetoresistance effect element and said resistance detector element formed on the substrate" as defined in each of Applicants' base claims 1 and 11.

However, this citation is misplaced. FIG. 5 of Yoshida '761 merely illustrates the arrangement and pattern of MR head elements and RLG (Resistance Lapping Guide) sensors on a bar. RLG sensors are lapping control sensors, used to correct the bending of the bar and to control the stop position of lapping, so as to obtain optimal properties of the MR head elements. Specifically, on column 5, lines 40-42 of Yoshida '761, the edges 57 opposite to the air bearing surface (ABS) of the MR head elements and the RLG sensors are aligned on the same line. As a result, Yoshida '761 does not have a need, nor is there any disclosure therein Yoshida '761,

of any detection scheme to detect alignment error between MR elements and resistance detector elements, as defined in each of Applicants' base claims 1 and 11.

As a secondary reference, Shafer '518 does **not** and **cannot** remedy the noted deficiencies of Yoshida '761 in order to arrive at Applicants' base claims 1 and 11. This is because Shafer '518 only discloses a broad spectrum ultraviolet catadioptric image system in which an achromatic multi-element field lens is used, as shown in FIG. 1, in order to correct image and color aberrations. Shafer '518 does **not** disclose or suggest any method or apparatus for measuring dimensions and alignment error of thin film magnetic heads formed on a substrate as expressly defined in each of Applicants' claims 1-4, 11-14 and 20-22.

In fact, nowhere in the final Office Action (Paper No. 1203) is there any allegation that one skilled in the art can incorporate features from Shafer '518 into Yoshida '761 for purposes of accurately detecting (1) variation in dimensions of said magnetoresistance effect element and said resistance detector element formed on the raw bar, and (2) alignment error of said magnetoresistance effect element and said resistance detector element from an image signal obtained by image pick up means in order to arrive at Applicants' claimed "method or apparatus for measuring dimensions and alignment error of thin film magnetic heads formed on a substrate" as expressly defined in each of Applicants' claims 1-4, 11-14 and 20-22.

The law under 35 U.S.C. §103 is well settled that "obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching, suggestion or incentive supporting the combination." ACS Hospital System, Inc v. Montefiore Hospital, 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984). The Examiner must point to something

in the prior art that suggests in some way a modification of a particular reference or a combination of references in order to arrive at Applicants' claimed invention. Absent such a showing, the Examiner has improperly used Applicants' disclosure as an instruction book on how to reconstruct to the prior art to arrive at Applicants' claimed invention. This is in addition to the requirement that the prior art reference (or references when combined) must also teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and **not** based on Applicants' disclosure. In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). See MPEP 2143. In other words, all the claim limitations must be taught or suggested by the prior art. In re Royka, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). "All words in a claim must be considered in judging the patentability of that claim against the prior art." In re Wilson, 424 F.2d 1382, 1385, 165 USQP 494, 496 (CCPA 1970).

In the present situation, Yoshida '761 and Shafer '518 fail to disclose and suggest key aspects of Applicants' claims 1-4, 11-14 and 20-22. Therefore, Applicants respectfully request that the rejection of claims 1-4, 11-14 and 20-22 be withdrawn.

Lastly, claim 6 has been rejected under 35 U.S.C. §103(a) as being unpatentable over Yoshida et al., U.S. Patent No. 6,212,761, as modified to incorporate selected features from Shafer, U.S. Patent No. 5,717,518 as applied to claim 1 above, and further in view of Suzuki et al., U.S. Patent No. 5,471,084. Since the correctness of this rejection is predicated upon the correctness of the rejection of Applicants' claim 1, Applicants respectfully traverse the rejection for the same reasons discussed against the rejection of claim 1 above.



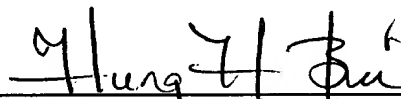
In view of the foregoing amendments, arguments and remarks, all claims are deemed to be allowable and this application is believed to be in condition to be passed to issue. Should any questions remain unresolved, the Examiner is requested to telephone Applicants' attorney at the Washington DC area office at (703) 312-6600. Applicants respectfully reserve all rights to file subsequent related application(s) (including reissue applications) directed to any or all previously claimed limitations/features which have been amended or canceled, or to any or all limitations/features not yet claimed, i.e., Applicants have no intention or desire to dedicate or surrender any limitations/features of the disclosed invention to the public.

To the extent necessary, Applicants petition for an extension of time under 37 CFR §1.136. Please charge any shortage of fees due in connection with the filing of this paper, including extension of time fees, to the Deposit Account of Antonelli, Terry, Stout & Kraus, No. 01-2135 (Application No. 501.37854X00), and please credit any excess fees to said deposit account.

Respectfully submitted,

ANTONELLI, TERRY, STOUT & KRAUS, LLP

By



Hung H. Bui (Reg. No. 40,415)  
Attorney for Applicant(s)

HHB:btd

1300 North Seventeenth Street, Suite 1800  
Arlington, Virginia 22209  
Tel.: (703) 312-6600  
Fax: (703) 312-6666